

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

**MARK SCHEME for the October/November 2011 question paper
for the guidance of teachers**

5070 CHEMISTRY

5070/42

Paper 4 (Alternative to Practical), maximum raw mark 60

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – October/November 2011	5070	42

- 1 (a) B (1)
- (b) pipette (1) [2]
- 2 (a) (i) insoluble (in water) not slightly soluble (1)
(ii) catalyst or speeds up reaction or dehydrating agent (1)
(iii) $\text{CH}_2 = \text{CH}_2$ (1)
- (b) (i) yellow, brown or orange (1)
(ii) colourless or decolourised (1)
(iii) addition or saturation (1)
not bromination
- (c) (i) butene ignore 1 or 2 in name (1) $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$ etc (1) [8]
- 3 (a) sea water is higher as it contains impurities, or dissolved salts (which increases the boiling point) (1)
- (b) NaCl (1)
- (c) (i) flask containing water (by label or observation) together with heat either shown as a bunsen or heating block or arrows labelled heat (1)
condenser showing outer and inner tube, sloping in correct direction, water labelled entering and leaving at correct points, (1)
(no vertical condensers)
receiver and all the apparatus connected correctly (1)
No blockages
Ignore use of thermometer and fractionating tube
- (ii) desalination or reversed osmosis (1)
- (d) filtration or sedimentation or centrifugation (1)
- (e) chlorine (1) bleaches or decolourises litmus (1) [9]

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – October/November 2011	5070	42

- 4 (a) syringe (1)
- (b) lime water turns milky (1)
- (c) (i) 0.005 (1)
- (ii) 0.01 (1)
- (iii) $0.01 \times 84 = 0.84\text{g}$ (1) [5]
- (5) (d) (1) [1]
- (6) (d) (1) [1]
- (7) (c) (1) [1]
- (8) (b) (1) [1]
- (9) (c) (1) [1]
- 10 (a) yellow to blue (1)
- (b)
- | | | | |
|------|------|------|--|
| 26.1 | 28.6 | 37.1 | 1 mark for each correct row <u>or</u> column (3) |
| 0.0 | 3.4 | 11.7 | |
| 26.1 | 25.2 | 25.4 | |
- Mean titre = $25.3 (1) \text{ cm}^3$
- (c) 0.00506 / 0.0051 (1)
- (d) 0.00506 / 0.0051 (1)
- (e) 0.0506 / 0.051 (1)
- (f) (i) 0.0506 / 0.051 (1)
- (ii) 2.02(4) / 2.04 (1) [10]

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – October/November 2011	5070	42

11 (a) colourless solution, no colour, coloured solution not present (1)
no compounds

(b) (i) white ppt (1)

(ii) soluble (1)

(c) (i) white ppt (1)

(ii) insoluble (1)

(d) aq. NaOH (1) Al foil (1) warm (1)
ammonia (1) or gas turns litmus blue
or brown ring test: conc (1) H₂SO₄ (1) FeSO₄ (1) brown ring (1)

Al(NO₃)₃ (1)

[10]

12 (a) (i) 26, 35, 47, 60 all correct (2) one error (1)

(ii) all points plotted correctly (1) smooth curve through points (1)

(iii) 60 s (1)

(iv) 32 °C (1)

(b) (i) all points plotted correctly (1) smooth curve through points (1)

(ii) 132 s (1)

(iii) 30 °C on graph 1 ----- 60 seconds (1)
60 seconds on graph 2 ----- 0.052 mol/dm³ (1)
(Correct answer, 0.052 mol/dm³ (2))

[For answers (a)(iii) and (iv), (b)(ii) and (iii) please read candidate's graphs to ± half small square.]

[11]